

C. Huang
U.S. Serial No. 10/696,198
Page 4 of 5

RECEIVED
CENTRAL FAX CENTER

FEB 27 2007

REMARKS

Claims 1-8 are pending in the application. Claim 1 has been amended by the present amendment. The amendment is fully supported by the application as originally filed (see, e.g., specification at page 9, lines 21-24 and page 10, lines 6-12).

Applicant's claimed invention is directed to a multi-chip package device with a heat sink, in which at least a first chip is mounted on a surface of a chip carrier, and at least a semiconductor package is mounted on the surface of the chip carrier, where "the semiconductor package is slightly thicker than the first chip" (independent claim 1). Further, as claimed, the heat sink is mounted on the first chip and the semiconductor package, where "a portion of the heat sink attached to the first chip is made thicker than another portion of the heat sink mounted on the semiconductor package" (independent claim 1).

For example, as shown in FIG. 4b of the application, the heat sink 34 includes a portion attached to the first chip 32, which is thicker than another portion attached to the semiconductor package 33. According to the Applicant's claimed invention, the thicker portion of the heat sink "would be deformed to a greater extent under temperature variations," and thus hollow parts 34a are provided to release thermal stresses (see, e.g., specification at page 10, lines 6-12).

Claims 1-4 and 6-8 were rejected under 35 USC 102(a) as being anticipated by U.S. Patent Application Publication US 2004/0099945 to Ku (hereinafter "Ku")¹. Claim 5 was rejected under 35 USC 103(a) as being unpatentable over Ku in view of U.S. Patent 5,598,033 to Bechler et al. These rejections are respectfully traversed.

The Ku reference does not teach or suggest a multi-chip package device in which at least "a portion of the heat sink attached to the first chip is made thicker than another portion of the heat sink mounted on the semiconductor package," as recited in independent claim 1.

¹ It is noted that the Ku reference does not qualify as prior art under 35 USC 102(a). The subject application was filed in the United States on October 28, 2003, which precedes the publication date (May 27, 2004) of the Ku reference. Therefore, the Ku reference cannot be applied under 35 USC 102(a).

C. Huang
U.S. Serial No. 10/696,198
Page 5 of 5

On page 2 of the Office Action of 11/27/2006, first and second chips 30 and 31 of Ku wcrc cited as allegedly corresponding to the Applicant's claimed "at least one first chip," and an encapsulant 20 was citcd as allegedly corrsponding to the claimed "semiconductor package."

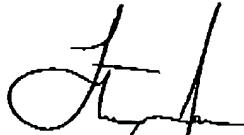
However, one of ordinary skill in the art would understand that an encapsulant (such as the encapsulant 20 of Ku) does not correspond to a "semiconductor package." Instead, as described in paragraph 0048 of Ku, the encapsulant 20 merely covers and seals the chips 30, 31.

In Ku, there is no teaching or suggestion that a portion of the thermal bridge 50 attached to the "first" chip 30 or 31 is thicker than another portion of the thermal bridge 50 "mounted on the semiconductor package." In Ku, the thermal bridge 50 has a substantially constant thickness, except for apertures 504 that accommodate the chips (see paragraph 0050 of Ku).

For at least the reasons discussed above, the Ku reference does not anticipate or otherwise render obvious the Applicant's claimed invention. Therefore, independent claim 1 and dependent claims 2-8 are patentable over Ku.

It is believed the application is in condition for immediate allowance, which action is earnestly solicited.

Respectfully submitted,



Peter F. Corless (Reg. No. 33,860)
Steven M. Jensen (Reg. No. 42,693)
Edwards Angell Palmer & Dodge
P.O. Box 55874
Boston, MA 02205

Date: February 27, 2007

Phone: (617) 439-4444

Customer No. 21874